

canizer at about 190° F., for about 12 minutes, after which the mechanism 28 is stopped and the unit 12 is removed from vulcanizer 10 for removal of the mandrels 30 from the reel 17 as previously described.

The method of the invention will be best understood by reference to Figure 2, wherein a fixed point "a" is indicated on the inner periphery of the large opening 33 (or 34) of plate 31 (or 32). When the reel makes a full revolution the point "a" will also make a full revolution, as indicated by chain-dotted positions of the opening 33. With each said revolution of point "a" the mandrel 30 will make a number of revolutions in clockwise direction, whereby the tube 35 supported on the mandrel is frictionally driven by the mandrel to rotate in clockwise direction. In the proportions shown in Figure 2 the rubber tube 35 would make at least one revolution with each revolution of the reel 17, so that if the reel makes twelve revolutions during a vulcanizing cycle, for example, the tube may also revolve about twelve times during the same period. The amount or speed of rotation of the tube 35 during the vulcanizing cycle may be varied to suit various conditions, such as the diameter of the tubing or the thickness thereof, or the grade of rubber. The diameter of the mandrel may also be varied to suit conditions, but in any event the diameter of the mandrel should be smaller than that of the tubing 35 so that the latter will be freely suspended from a contacting area along the upper portion of the mandrel, as shown.

Rotation of the tube 35 during vulcanization thereof prevents scorching of the rubber along the area of contact of the tube with the hot metal of mandrel 30. Moreover, such rotation prevents accumulation of condensate at the bottom of the tube which would adversely affect uniform vulcanization of the rubber. The particles of the rubber are uniformly aligned and the total result is a tube of uniformly circular cross-section. Narrow elastic bands E, cut from this tube, in known manner, similarly will be of uniformly circular cross-section and of substantially uniform elasticity and tensile strength. A finished elastic band E is shown in Figure 3.

Generally speaking the method herein contemplates rotation of an elongated tube of vulcanizable elastic material while supporting the same by a portion of its peripheral wall along its entire length, and at the same time exposing the tube to open heat of vulcanization. Satisfactory speeds for this purpose have been found to be between one half and five revolutions per minute. In the reel 17 shown in the drawings the aligned openings 33 and 34 thereof may be, for example, approximately 2¼ inches, while the mandrels used therewith may be within a range 1¼ to 2 inches in diameter, depending upon the size of elastic bands to be made from the tubing. Rotation of the reel, and hence the mandrels, may be in alternately reversed directions to obviate any tendency toward twisting of the tubing.

Modifications of the invention may be resorted to without departing from the spirit thereof or the scope of the appended claims.

What is claimed is:

1. A method of making elastic tubing as for production of elastic bands, comprising the steps of providing a length of thin-walled tubing, of heat-curable, flexible elastic material, mounting said tubing on a horizontally extending

supporting mandrel to suspend freely therefrom along an area of contact between the upper peripheral surface of the mandrel and the inner periphery of the tubing, and in the presence of open curing heat rotating the mandrel about its axis and thereby imparting rotative movement to the tubing on the mandrel, said rotative movement of the tubing being for at least a part of the time in which the elastic material becomes set during the curing cycle, whereby the particles of the elastic material are substantially uniformly aligned in the tubing, and whereby the cured tubing will have uniform tubular shape and uniform elasticity and tensile strength.

2. A method of making elastic tubing as for production of elastic bands, comprising the steps of providing a length of thin-walled tubing, of heat-curable, flexible elastic material, mounting said tubing on a horizontally extending supporting mandrel to suspend freely therefrom along an area of contact between the upper peripheral surface of the mandrel and the inner periphery of the tubing, and in the presence of open curing heat moving the horizontally extending mandrel in an orbit while rotating the mandrel about its axis and thereby imparting rotative movement to the tubing on the mandrel while moving in said orbit, said rotative movement of the tubing being for at least a part of the time in which the elastic material becomes set during the curing cycle, whereby the particles of the elastic material are substantially uniformly aligned in the tubing, and whereby the cured tubing will have uniform tubular shape and uniform elasticity and tensile strength.

3. A method of making elastic tubing as for production of elastic bands, comprising the steps of providing a length of thin-walled cylindrical tubing of vulcanizable, flexible, rubber-like material, mounting said tubing on a horizontally extending supporting mandrel to suspend freely therefrom along an area of contact between the upper peripheral surface of the mandrel and the inner periphery of the tubing, and in the presence of open heat of vulcanization moving the horizontally extending mandrel about a continuous orbit while simultaneously rotating the mandrel about its axis and thereby imparting rotative movement to the tubing on the mandrel, said rotative movement of the tubing being for at least a part of the time in which the elastic material becomes set during the vulcanizing cycle, whereby the particles of the elastic material are substantially uniformly aligned in the tubing, and whereby said vulcanized tubing will have uniform cylindrical shape and uniform elasticity and tensile strength.

4. A method of as set forth in claim 1, wherein rotation of the mandrel is periodically reversed to reverse the rotative movement of the tubing.

5. A method as set forth in claim 3, wherein movement of the mandrel is periodically reversed to reverse the rotative movement of the tubing.

References Cited in the file of this patent

UNITED STATES PATENTS

1,189,936	Goldsmith	July 4, 1916
1,543,890	Williams	June 30, 1925
1,623,183	Hennessy	Apr. 5, 1927
1,665,309	Laursen	Apr. 10, 1928
2,271,855	Cleveland et al.	Feb. 3, 1942
2,557,439	Kmentt	June 19, 1951